DOCUMENT RESUME

ED 389 168 FL 023 349

AUTHOR Lam, Wendy Y. K.
TITLE Investigating the Oral Fluency of 15 EFL Teachers: A Quantitative Approach Revisited.
PUB DATE Dec 94
NOTE 23p.; Paper presented at the International Language in Education Conference (Hong Kong, December 16, 1994).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *English (Second Language); Foreign Countries; *Language Fluency; *Language Teachers; *Oral Language; Secondary School Teachers; Second Language Instruction; Statistical Analysis; *Teacher Education

ABSTRACT

This report describes a research study designed to adopt a predominantly quantitative approach to investigating three related aspects of oral fluency: fluency improvement, correlation between subjective judgments and objective counts, and variation of fluency in different speech interactions. Subjects were 15 English as a foreign language (EFL) secondary school teachers before and after a 20-week, full-time, in-service course. Variables measured were pruned words per minute, number of filled pauses per T unit, and percentage of T units followed by a pause as suggested by P. Lennon (1990). Fluency under two different speech contexts was also observed. Findings confirm that the three quantitative parameters were not sufficient to track progress in oral fluency that may have reached a ceiling effect, that speech rate was a powerful predictor for verbal fluency and is possibly a core component of fluency, and that speech rate did vary in the reporting and interview tasks. (Contains 12 references and 3 tables) (Author/NAV)

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Investigating the Oral Fluency of 15 EFL Teachers: A Quantitative Approach Revisited

ED 389 168

Wendy Y.K. LAM

The Hong Kong Institute of Education
Bonham Campus

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Note: This paper was presented at the *International Language in Education Conference 1994*, co-organized by the Department of Curriculum Studies and the English Centre of the University of Hong Kong, The Hong Kong Institute of Education & Hong Kong Association for Applied Linguistics on 16 December 1994 in Hong Kong.

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INTRODUCTION

This is a report on a research study designed to adopt a predominantly quantitative approach to investigate three related aspects of oral fluency: (1) fluency improvement; (2) correlation between subjective judgements and objective counts; (3) variation of fluency in different speech interactions. Three quantitative variables: the number of "pruned" words per minute, the number of filled pauses per T unit and the % of T units followed by pause as suggested by LENNON (1990), were used to track fluency progress of 15 EFL teachers before and after a 20-week full-time In-service Course for Teachers of English in Secondary Schools run in the Bonham Campus of Hong Kong Institute of Education in 1993.

One of the main objectives of the Course is to extend the fluency and enhance the confidence of participants in spoken English. It is however not explicitly spelt out how if at all the fluency of the teachers is expected to change. This study therefore attempted to describe, in more concrete terms using three quantitative parameters employed by Lennon (1990), the way the oral fluency of 15 teachers on the ES 931 course developed over time.

In the context of investigating fluency improvement, the second set of closely related questions was addressed as well. How are the listener's qualitative judgements related to the quantitative measurements of fluency of the speaker? How far are quantifiable characteristics of fluency indicators of perceived fluency?

Last but not the least, this research also investigated the fluency performance of the teachers under two different speech contexts to see if fluency is a context-dependent variable.

THE REVIEW OF THE LITERATURE

Improvements in Oral Fluency

Lennon's (1990) study is the most thorough and influential in quantifying the characteristics of oral fluency and comparing values of quantifiable variables between two time points to gauge oral improvements, if any. He analyzed samples of the spoken performance of four female West German university students, advanced learners of English, who had been subjectively assessed by a panel of judges to have advanced in fluency after six months' residence in Britain. In a battery of 12 quantifiable variables, it was found that significant improvements across the four subjects over time at the .05 level (one-tailed) test were found for three variables, namely speech rate, filled pauses per T-unit and % of T-units followed by pause. Lennon's research has significant contributions to the objective measurement of fluency development over time.

Objective Counts as Indicators of Perceived Fluency

Quantifiable variables have been used to compare native with non-native fluency in speech. Lennon's (1984) study, for example, aimed at comparing the speech of 12 sample members at the University of Kassel, all native speakers of German, with

that in a model recording. Results showed that the 12 learners had a lower speech rate than that of the model speech of a native speaker. In addition, 96% of pausing in the model occurred at clauses boundaries or after statements; almost no pauses occurred within the integral elements of clauses. For the sample members, however, between 17% to 85% of pause time occurred within the integral elements of clauses. Percentages of pause time both at all clause boundaries and after statements were very much lower than those in the model.

In a study devoted to comparing characteristics of spoken texts of advanced German speakers of French and French speakers of German to see the observable results of the relevant processes underlying speech production, Mohle (1984) also suggested using temporal variables such as speech rate, the length and positioning of silent pauses, and the frequency of repetitions and self-corrections as possible measures of fluency.

Fluency Difference in Different Speech Contexts

Research studies have confirmed that fluency may be a context-dependent variable. In a study by Grosjean (1980), for example, the results obtained were very different across the two tasks: description of cartoons and a recorded interview. The distribution of speaking rates did not overlap: the lowest rate obtained in the interview was the same as the highest rate in the description of cartoons. Descriptions, when compared with interviews, were produced more slowly and with many more hesitations and pauses. They occurred in very similar syntactic positions, though.

Mohle's (1984) study in which important temporal variables in measuring fluency were identified echoes similar findings. Results indicated that the more highly pre-structured task (ie. cartoon description) required without exception more time to carry out and apparently permitted only a more limited planning range with shorter speech units than the less structured task (i.e. interview) did. Both the German and French described the cartoons more slowly and in shorter speech units than they did when answering questions.

That temporal variables of speech may vary according to speech context was also supported by two kinds of tests carried out by Sajavaara & Lehtonen (1980) : reading tests and tests of free or spontaneous delivery of speech. Results confirmed that the amount of pauses was much higher in spontaneous speech than in reading. The rate of reading was clearly higher than the rate of speaking due to longer and more frequent pauses in free speech.

RESEARCH HYPOTHESES

Improvements in oral fluency over time

Hypothesis 1

The markers' impressionistic ratings of the teachers' oral fluency will be higher after the 20-week In-service Course.

Hypotheses 2 (i) - (iii)

2 (i) The speech rates of the teachers will increase after the 20-week In-service Course.

2 (ii) The teachers will have fewer filled pauses per T-unit after the 20-week In-service Course.

2 (iii) The teachers will have lower % of T-units followed by pause (filled and unfilled) after the 20-week In-servie Course.

Correlations of subjective judgements and objective counts

Hypothesis 3

3 (i) Fluency ratings will show positive correlation with speech rates.

3 (ii) Fluency ratings will show negative correlation with numbers of filled pauses per T unit.

3 (iii) Fluency ratings will show negative correlation with percentages of T units followed by pauses (filled and unfilled) .

Fluency difference in different speech interactions

Hypotheses 4 (i - iii)

4 (i) The speech rates of the teachers will differ significantly in tasks (a) and (b).

4 (ii) The numbers of filled pauses per T-unit will differ significantly in tasks (a) and (b).

4 (iii) The % of T-units followed by pause (filled and unfilled) will differ significantly in tasks (a) and (b).

RESEARCH DESIGN AND METHODOLOGY

Subject selection

Teachers attending the ES 931 In-servie Course for teachers of English in Secondary Schools were recruited on a voluntary basis and 15 were randomly chosen.

Data collection

To gauge improvements in oral fluency over the 20-week time gap, taped language samples were collected from each of the 15 subjects for study. They were recorded before and after the In-service Course in a sound-proof recording-studio in the Institute. The researcher was the only person present with individual subjects during all recordings.

Procedure

Two different tasks i.e. task (a) and task (b) were designed for the subjects. Task (a) was basically a reporting task. Each individual subject was given about 3 minutes to read a feature article (taken from a local Chinese newspaper) outlining three typical types of teachers in Hong Kong. The subjects had to re-tell the gist of the article in English.

Task (b) followed immediately after the first task. The researcher started a conversation with the subject on various topics. Several pre-set questions which were mainly concerned about the teaching profession in Hong Kong and their experience on the UK Extension Course were used for most subjects at times 1 and 2 respectively.

Rationale for the choice of tasks

The two tasks were meant to provide the subjects with more opportunities to elicit speech samples in different speech interactions. In task (a), the subjects basically had to re-tell factual information from the article read. This called for some knowledge of information routines for presentation of facts (Bygate 1987). The task, which involves planning and producing relatively precise talk on the part of the speaker, is believed to resemble the picture narrative condition used in Lennon's study (1990).

The oral-interview format adopted in task (b) was expected to tap familiar interactional routines appropriate for casual chats or informal interviews. It was not so much information routines as interaction routines which were called for.

In a word, tasks (a) and (b) were chosen on the assumption that they offered different environments that could generate different speech interactions.

Processing of language data

Extraction of language samples

In both the pre- and post- course recording sessions, a five-minute extract was taken from the rendering of every subject for subjective rating and objective counting.

Subjective judgements of the language extracts

The five-minute extracts of all the 15 subjects were given

to two independent markers for subjective fluency rating. A nine-point scale was adopted, with point one indicating the lowest level of achievement and point nine approximating native- speaker level.

Objective counts of language extracts

All the extracts were fully transcribed for objective counts. The measurement methods employed in Lennon's study (1990) for the three temporal variables (i.e. speech rate, number of filled pauses per T unit, percentage of T units followed by pauses) were used in this study.

DISCUSSION OF RESULTS

Fluency improvements over time

There was no perceptible improvements in the verbal fluency of the subjects in relation to the impressionistic ratings of the markers over time. Nor were there any marked improvements in terms of the number of "pruned" words per minute, the number of filled pauses per T unit and the % of T units followed by pauses after the 20-week Course.

The "Ceiling" effect

Unlike the young student learners of English in Mohle's (1984) and Lennon's (1990) studies, subjects in this study were adults who had already mastered quite an advanced level of spoken English when they joined the In-service Course. It is possible

that these adults might have reached a "ceiling" as regards their development of speech rate.

Qualitative aspects of the quantitative parameters of oral fluency

Hence, it would be more appropriate to postulate that improvements in oral fluency if any among very advanced speakers of L2 is one of quality but not of quantity. Quantitative parameters of fluency alone are not as sufficient indicators of fluency improvement for advanced as for elementary learners.

It is proposed that qualitative changes might have taken place as regards to each of the three quantitative parameters.

Qualitative changes in the type of repeated or self-corrected words

The use of "pruned" words for measuring speech rate simply discounts all repeated or self-corrected words in the transcribed data irrespective of their roles and functions to achieve communicative needs.

There have been research studies supporting that repeated words, if used appropriately, could be ways and means to establish fluency in speech (Hieke 1981, Olynak 1990). Similarly, self correction as a device of monitoring, if done appropriately and moderately, can enhance fluency. In fact, repair or reformulation is an ingredient of fluency.

The word count approach dismisses all the repetition, repair and reformulation work needed in achieving accuracy to improve perceived fluency. Indiscriminate discounting of all repeated

or self-corrected words cannot reflect fluency enhancement effects intended for by the deliberate deployment of some repeated or self -corrected words.

Qualitative changes in the functions of pauses

Pausal phenomenon was expected to decrease after the language proficiency Course. Yet the results do not support this hypothesis.

The problem of relying solely on a quantitative approach to fluency rating is again obvious here. There exists the problem of insensitivity of the measure of filled pause itself to the difference between the hesitation of not being able to think of what to say next and the need to search for proper lexical or syntactic expressions. The former type of pause does not necessarily constitute dysfluency in speech whereas the latter kind may always do. A pause during speech may be occasioned by speech planning, speech execution, or information-processing activities either singly or in combination with each other. In a word, pausal phenomenon is just natural for the formulation of ideas. They do not necessarily signify an inability on the part of the speaker to express himself or herself linguistically.

Qualitative changes in the positions of pauses

The explanation used by Lennon (1990) for expecting a lower % of T-units followed by filled and unfilled pauses is that more "run-on" units are produced as a result of fluency improvement. This is not the case as indicated by the present research results.

Fluent speakers do not normally pause within the integral elements of clauses but they do pause at major boundaries, eg. end of a T unit to reorganize or formulate thoughts (Chafe 1979). General or global planning ahead takes place at clause boundaries in fluent speakers. As for non fluent speakers, they do not have sufficient time at clause boundaries, so they resort to pausing within clauses for lexical search (Rehbein 1987). Difference in pause positioning affects perceived fluency. Pauses clustering around clauses do not affect perception of fluency whereas pauses within clauses do.

Based on this, I would have thought that separation of T units by hesitation phenomena of some kinds such as filled and unfilled pauses is not only accepted but expected.

Implications for teaching

The basic notion is therefore to devise measures of verbal fluency which can accommodate qualitative changes. The types of changes and the appropriate qualitative variables that should be investigated would depend on the aims and content of a course or programme which aims at bringing about fluency change in the participants. In other words, the course has to be quite specific as to what sort of fluency improvements it aims to achieve. It is only when the specific aspects of fluency are determined can appropriate fluency measurements (quantitative and/ or qualitative) be employed to track fluency progress. Without a clear and specific definition of fluency, it would be difficult to recommend appropriate measuring instruments and parameters. This echoes Fillmore's recommendations (1979) that different

measurements are needed to measure different types of fluency.

Quantifiable Parameters as Objective Indicators of Oral Fluency

Speech rate as a powerful indicator of oral fluency

Results of correlation tests and multiple regression method have confirmed that fluency is closely associated with speech rate or the normal tempo of speech (Tables 1 & 2). The subjective impression of "constant flow of speech" or "periods of relative speech continuity" is highly likely to be accounted for by the speed of delivery. The speaker does not need an inordinate amount of time and effort to produce stretches of utterances. That is to say speech rate is a promising measurable parameter to define fluency of a speaker. To employ Lennon's (1990) terminology, speech rate could be regarded as a "core element" of oral fluency.

Frequency of filled pauses as an objective parameter for fluency

Results of this study do not support any correlation whatsoever between the number of filled pauses and subjective fluency ratings at both time points.

The primary reason may be due to the fact that filled pauses do serve different functions in speech. Frequency of filled pauses is an observable manifestation of the speaker's cognitive process in search for ideas and not necessarily for linguistic help. This argument is more convincing for this study than for

Lennon's (1990). Whereas learners in Lennon's study had to verbalize a series of cartoon strips without the need to search for ideas, the subjects in the present study had to perform two tasks and one of which demanded of them to recall past experiences and give personal opinions. In consequence, a lot more filled pauses might have been needed to gain time to formulate and express ideas.

Positioning of pauses as an objective indicator of oral fluency

The findings of the present research at the two time points as regards the relationship of this quantifiable parameter with subjective fluency judgement do not support the hypothesis.

First, unlike Lennon's study (1990), the present research did not measure unfilled pauses objectively by setting a cut off point (e.g. over 0.5 second). All the unfilled pauses were determined subjectively by the ear but not by a machine. Hence, they were perceived pauses rather than "absolute" pauses. In a sense, the quantitative parameter is not purely objective.

Secondly, there exists the basic problem of bias in transcription in general. There is no absolute assurance that the speech record as transcribed reliably contains the aurally captured, unaltered sound streams and words. There is bound to be some degree of inaccurate records by human perception and possible interpretation.

To make matters worse, spoken language is not written language spoken out. Clause boundaries are simply not clearcut; very often, distortions and fragments of clauses are found. A certain degree of subjective judgement creeps in when it comes

to the identification of pauses and T units and consequently the overall objectivity of the parameters can only be relative.

Pedagogic implications

It has always been difficult to define oral fluency. Teachers need to know what exactly constitutes fluency in order to specify the aims of language teaching and develop oral skills of students more effectively. Now speech rate seems to be a good candidate as a quantitative parameter of verbal fluency, and hence expectations of oral competence can be explicitly spelt out. Teachers can help learners improve on the speed of production, which will be one of the concrete aims of teaching spoken English.

Fluency Difference in Different Speech Interactions

Speech rate

Results of T tests (for correlated samples) were in line with Mohle's results (1984), confirming that there was significant difference across the two tasks in terms of speech rate at both time sessions (Table 3).

The phenonmenon that production was slower in the reporting task (a) than in the conversation-based task (b) is a fair reflection of the higher cognitive and linguistic demands required for the former than the latter task. Task (a) involved, among other things, some degree of memory load and the linguistic encoding of a Chinese article. The subjects had to search for particular words and appropriate paraphrases.

Cognitively, task (a) was also more demanding than task (b) because the speaker had to be quite specific about the main ideas to be reported back. It was not possible for subjects to substitute ideas in the article with novel ones. On the contrary, in the semi-interview / conversation in task (b), the subjects could express their ideas freely. They could avoid ideas that they had difficulty in expressing and substituting topics which were unfamiliar with familiar ones.

Frequency of filled pauses

The difference in terms of the frequency of filled pauses was not that marked across the two tasks. This finding raises a fundamental question about the nature of the two supposedly "different" tasks : how different are the contextual variables inherent in the two speech tasks?

First, in both tasks, only the researcher and individual subjects were present. In fact, the subjects were participants and the researcher was a tutor on the Course. This created an inescapably asymmetrical role relationships and status in both tasks.

Second, norms of interaction in tasks (a) and (b) were not that different. The conversation-based task (b) created a pseudosocial situation. It was not a real conversation because there was hardly any spontaneous speech elicited in the task. The subjects were granted relatively uninterrupted chances to answer short questions. Norms of interaction were not that different from those in task (a) in which they took long turns to speak.

With regard to setting and scene, they were identical in the

two tasks. The subjects finished task (a) before proceeding to task (b) in the same location for recording at both time sessions.

All in all, the nature of the two tasks was different only to a limited extent. It was not great enough to cause differences in some aspects of the quantitative features of fluency.

% of T units followed by pauses

The insignificant difference in the % of T units followed by pause could indicate that speakers tend to pause at similar locations across tasks, regardless of their nature. This is particularly true for breath pauses and junctures pauses (ie. end of T units). No matter how contextual variables such as participants, roles, setting and formality level may vary, fluent speakers still have to pause and more importantly at appropriate locations. Run-on T units therefore may not be common in fluent stretches of speech.

Pedagogic implications

The fact that there was significant difference in speech rates in different speech tasks and interactions suggests the need for providing learners with a diversity of learning opportunities to practise a broad range of speech styles. This is believed to be necessary because students are likely to be engaged in authentic situations in which different speech styles and interactions are required in different communicative environments. In other words, different speech contexts embodying

different contextual variables (eg. role relationship, setting, formality level, topic) should be engineered in the classroom. By so doing, the learners can be exposed to and given chances to practise different speech rates and possibly fluency levels inherently required in different speech contexts. This can help improve their fluency performance in different speech situations.

CONCLUSIONS

Findings of the present study have confirmed that the three quantitative parameters (ie. speech rate, number of filled pauses per T unit, % of T units followed by pauses) are not sufficient to track progress in oral fluency that may have reached a ceiling effect. Additional measures involving the analyses of transcribed data to see if there are qualitative changes in the three quantitative parameters before and after the Course are needed.

It has also been found that subjective judgements and objective counts are related. Speech rate is a powerful predictor for verbal fluency and probably a strong candidate for being one of the "core" components of fluency.

In the context of investigating the aforementioned issues, it has been validated that speech rate does vary in the reporting and interview tasks. As speech rate is a powerful contributor to fluency, there is a strong case to argue that fluency may vary from one speech context to another.

APPENDIX

Table 1

Objective Counts as Indicators of Subjective Judgements

Correlation values between perceived fluency and speech rate, number of filled pauses per T-unit, and % of T-units followed by pauses at both time points 1 & 2

Correlations	Fluency T1	Fluency T2
Speech rate T1	+ .5990 p = .009	/
Speech rate T2	/	+ .6584 p = .004
Filled pauses T1	- .2551 p = .179	/
Filled pauses T2	/	+ .0241 p = .466
T-units T1	+ .0125 p = .482	/
T-units T2	/	- .4984 p = .029

The above results show that correlation values between speech rates and impressionistic ratings at both time points were significant at .05 level.

Table 2

Causal relationship between subjective fluency rating and the number of "pruned" words per minute at time points 1 & 2

	Time 1	Time 2
Multiple R	.59903	.65842
R Square	.35884	.43352
Adjusted R Square	.30952	.38995
Standard Error	.94504	.84258
Beta Value	.599033	.658424
Significance of T	.0183	.0076

Results of multiple regression analysis show that at both time points 1 & 2, fluency was best predicted by speech rate, i.e. 35.88 % of variance in fluency was accounted for by the number of "pruned" words per minute at time point 1 and 43.35% at time point 2.

Table 3

Fluency Difference in Different Speech Interactions

Number of "pruned" words per minute taken at time point 1 (i.e. Feb/March 93) and time point 2 (i.e. Aug/Sept 93)

	Time 1		Time 2	
	Task (a)	Task (b)	Task (a)	Task (b)
Mean value	106.93	118.93	113.87	122.53
S.D.	17.17	16.52	14.62	14.46

	Time 1	Time 2
T-value between tasks (a) and (b)	- 2.50	- 2.42
P = .05		

(14 degrees of freedom)

T-values at both time points were significant at p = .05 level, suggesting that there was significant difference in terms of the number of "pruned" words per minute between tasks (a) and (b) at both time points.

REFERENCES

Bygate, M. (1987) Speaking. Oxford: Oxford University Press.

Chafe, W. (1979) The flow of thought and the flow of language. In Syntax and Semantics. Volume 12: Discourse and Syntax, New York : Academic Press, Inc.

Fillmore, C.J. (1979) On Fluency. In C. Fillmore, D. Kempler, & W. Wang (eds.) Individual Differences in Language Ability and Language Behaviour, New York: Academic Press, 85-102.

Grosjean, F.(1980) Temporal variables within and between languages. In H.W. Dechert & M. Raupach (eds.) Towards a Cross Linguistic Assessment of Speech Production, Verlog Peter D. Lang GmbH, Frankfurt am Main.

Hieke, A.E. (1981) A content-processing view of hesitation phenomena. Language and Speech, Vol. 24, Part 2.

Hieke, E. (1984) Linking as a marker of fluent speech. Language and Speech, Vol 27, Part 4.

Lennon, P. (1984) Retelling a story in English as a second language. In H.W. Dechert, D. Mohle, & M. Raupauch (eds.) Second Language Productions, Tubingen : Gunter Narr Verlag, Germany.

Lennon, P. (1990) Investigating fluency in EFL: A quantitative approach. Language Learning, 40:3, 387-417.

Mohle, D. (1984) A comparison of the second language speech production of different native speakers. In H.W. Dechert, D. Mohle, & M. Raupauch (eds.) Second Language Productions, Tubingen : Gunter Narr Verlag, Germany.

Olynak, M. et al (1990) A quantitative and qualitative analysis of speech markers in the native and second language speech of bilinguals. In R.C. Scarcella, E.S. Anderson E.S. & D, Krashen (eds.) Developing Communicative Competence in a Second Language : Series on issues in second language research, New York: Newbury House Publishers.

Rehbein, J. (1987) On fluency in second language speech. In HW. Dechert & M. Raupach, (eds.) Psycholinguistic Models of Production, New Jersey: Ablex Publishing Corporation, Norwood.

Sajavaara, K. & Lehtonen, J. (1980) The analysis of cross-language communication: Prolegomena to the theory and methodology. In H.W. Dechert & M. Raupach (eds.) Towards a Cross Linguistic Assessment of Speech Production, Verlog Peter D. Lang GmbH, Frankfurt am Main.